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[54] **BIPOLAR ELECTRODE STRUCTURE FOR MONITORING FETAL HEARTBEAT AND THE LIKE**

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[51] **Int. Cl.²** **A61B 5/04**

[58] **Field of Search** ..... 128/2.06 E, 2.06 R, 128/2.1 E, 2.1 R, 404, 418, DIG. 4

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[57] **ABSTRACT**

An improved electrode system for monitoring fetal heartbeat includes a curved guide tube adapted to be inserted through the vagina and cervix of a woman in labor, a retaining coil mounted on a holder member which is slidably disposed in the guide tube, a flexible driving tube adapted to rotate the holder member to screw the retaining coil into a fetal epidermis and two spaced electrodes which are adapted to be electrically connected to a suitable apparatus for monitoring fetal heartbeat. In the first disclosed embodiment of the invention one of the electrodes is a pointed member mounted in the holder which mounts the retaining coil. The retaining coil, when screwed into the fetal epidermis, maintains the pointed first electrode in piercing engagement with the fetus. In the second disclosed embodiment the retaining coil and the first electrode are one and the same structure, i.e., the first electrode is in the form of a coil which is adapted to screw into the fetal epidermis. In both of the embodiments disclosed the second electrode is spaced from the first electrode and electrical contact between the two electrodes is established by vaginal and cervical secretions of the woman in labor. Driving connection between the holder member and the flexible driving tube is provided by slots in the forward end of the driving tube and fin means on the holder. In the second embodiment disclosed the second electrode is in the form of a flat member mounted on the rear end of the holder and serves as the fin means.

36 Claims, 10 Drawing Figures